Reviewer’s report

Title: Accidental exposure to gas emissions from transit goods treated for pest control.

Version: 2
Date: 10 September 2014
Reviewer: Michael OMalley

Reviewer’s report:

1. Is the question posed by the authors new and well defined?

The paper is largely descriptive, evaluating markers for fumigant exposures to workers handling fumigant treated, but unlabeled, electronics. From my perspective, the documentation of exposure in this context is important and addresses an important public health issue.

2. Are the methods appropriate and well described, and are sufficient details provided to replicate the work?

The methods are fairly well described, with some limitations related to awkward syntax and use of English.

The clinical methods – including criteria for diagnosis – are not well defined. It seems to be based upon symptoms.

Why was there such a long interval between exposure and initial biomonitoring?

Explain further the prior literature on use of Hb adducts and how it contributes to the diagnosis.

What are the possible interferences with the Hb-adduct methodology besides smoking?

How does the extrapolation method apply if there are multiple exposures involved?

It would be helpful to explicitly discuss the expected half-life of the different types of monitoring (this is done principally for the Hb adducts).

e.g. – prior literature shows half-life of serum bromide – 10-12 days (http://www.inchem.org/documents/pims/chemical/methbrom.htm). The negative results of blood bromide was expected because initial evaluation took place many half-lives after the exposure.

If t1/2 for Hb adducts correlates with the lifespan of the cells, the expected t1/2 is related to the cycle of RBC – typically 100-120 days – as discussed in the article on page 5 of the pdf file.

Mercapturic acid derivative levels are expected to reflect very recent exposure
only.

E.g.


Biological monitoring of exposure to benzene: a comparison between S-phenylmercapturic acid, trans,trans-muconic acid, and phenol. Boogaard PJ1, van Sittert NJ.

The half-life reported in this study was a matter of hours.

Terminology questions:

Acrotaxia is a term that I don’t use personally- I couldn’t find it in the online Merriam-Webster dictionary (m-w.com), although I did find it a free online medical dictionary.

acrotaxia

acrotaxia A rarely used term for ataxia of the extremities - http://medical-dictionary.thefreedictionary.com/acrotaxia

not found in m-w.com

The authors may be describing what I would call an “intention tremor” - i.e. a tremor with voluntary movement of the extremity.

3. Are the data sound and well controlled?

The data are observational and limited by the circumstances of exposure. The timing of initial biomonitoring is not ideal, but the use of external controls is helpful in evaluating the information presented

Industrial hygiene monitoring data need more explanation:

The workplace facility and the details on the incidence and the sampling are described in

Table 1. The air measurement verified methyl bromide concentration from 2.5 to 200 ppm (mean: 125 ppm with 2.5-200 ppm min-max) in the storage room between the packing materials 5 days after the incidence. After the third accident 15 ppm ethylene oxide could be detected in the storage room.

This needs a little bit of discussion and a little bit more context?

Were the levels this high at the time of the initial exposure?

Do these represent area samples (as opposed to individual worker breathing zone samples)? If so, how they relate to worker exposure?

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
Yes, as far as can be ascertained.

5. Are the discussion and conclusions well balanced and adequately supported by the data?
Yes

6. Do the title and abstract accurately convey what has been found?

7. Is the writing acceptable?

Some instances of awkward syntax and use of vocabulary in describing the circumstances of exposure are present
Acroataxia (mentioned above) – may be best to clarify the meaning
The description of the work process was difficult for me to follow:
The workers were described as “unpacking wooden pellets with paper boxes covered with plastic
(containing construction parts) and managing the construction parts for the production line”

Some clarification is necessary:
What are “construction parts” – electric wiring or microelectronics components?
Why is fumigation necessary for these products?

Please make your report as constructive and detailed as possible in your comments so that authors have the opportunity to overcome any serious deficiencies that you find and please also divide your comments into the following categories:
• Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached)

I suggest the authors discuss the points above prior to publication.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
No